

APELL

Association Professionnelle
Européenne du Logiciel Libre
The European Open Source
Software Business Association

ENGAGE IN OPEN SOURCE
POLICY DISCOURSE:
PAST, PRESENT, AND FUTURE

CONFERENCE REPORT

APELL CONFERENCE
2024 BERLIN

The APELL Conference 2024 was a gathering of open source advocates, policymakers, industry leaders, and community members, aimed at shaping the future of open source policy in Europe.

The event featured a packed schedule of workshops, keynotes, talks, and panel discussions, providing a comprehensive platform for participants to share insights, debate challenges, and outline actionable steps for advancing open source initiatives.

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Table of Contents

- Opening Keynote by Peter Ganten A Call to Shape the Future of Open Source in Europe.....3
- Workshop: Defining Actionable Steps: APELL’s Policy Agenda for the Future.....6
- Workshop: Showcasing Success: Communicating the Impact of Open Source Initiatives.....9
- Workshop: Building Capacity for Action: Leveraging Resources for EU Open Source Initiatives.....13
- Opening Forum by Peter Ganten, President APELL..... 16
- Keynote by Geraldine de Bastion: Open Source for Democracy – Operating Systems for participatory Systems and collective decision making..... 19
- Keynote by Manuel Hoffmann: Unveiling the Economic Value of Open Source.....22
- Sovereign Cloud Stack: A Unified Effort to Build Open Standards and Free Software in the Cloud.....25
- Engaging in Open Source Policy: A Panel Discussion on the Past, Present, and Future.....29

Opening Keynote by Peter Ganten A Call to Shape the Future of Open Source in Europe



Peter Ganten, President of APELL and long-standing chairman of the German Open Source Business Alliance (OSBA), delivered a passionate keynote that set the tone for the day's discussions and debates. The conference, held in Berlin for the first time, brought together open source business leaders, advocates, and policymakers from across Europe and beyond, reflecting a growing momentum and visibility for open source initiatives in the region.

A Year of Opportunities and Challenges

Ganten began by acknowledging the significance of the timing of the conference. With European elections just around the corner, he emphasised that the open source community could not afford to remain passive observers, waiting to see what the new European administration might offer regarding open source policies. Instead, he urged the community to proactively shape the discourse around open source and digital sovereignty.

“This is a year where we must engage, discuss, and shape the policies that will define our digital fu-

ture,” Ganten declared, setting the stage for a conference focused on action and impact.

APELL’s Progress and Growing Influence

Reflecting on the three years since APELL's founding, Ganten highlighted the organisation's growing influence and visibility. He noted that representatives from the European Commission and other EU institutions were increasingly approaching APELL, recognising it as a significant voice for open source businesses in Europe.

While acknowledging that the open source industry in Europe is not yet the largest, Ganten shared an impressive figure: member organisations of APELL collectively represent around one billion euros in turnover. He called for further professionalisation and organisation, stating that APELL was now at a point where it must focus on setting clear priorities, securing sustainable financing, and building capacity to continue its advocacy work effectively.

“We are happy that we are now finally able to speak to individuals whom we might employ and work with, which can help us with our growth ambitions and political communication,” he said, underscoring the importance of investing in human resources to enhance the organisation's impact.

Open Source as a Pillar of Digital Sovereignty

Ganten emphasised that the open source community's mission extends far beyond business interests. He framed open source software and digital sovereignty as critical tools for addressing some of the most pressing challenges facing Europe and the world today.

He argued that in an era where everything is becoming digital, Europe must maintain its ability to shape and control the digital systems that govern everyday life. He warned of the dangers of losing this control to geopolitical actors who may not share Europe's values and interests. “We must retain our ability to shape things, innovate, build our own businesses, and control our digital surroundings,” Ganten stressed.

Looking Back and Moving Forward: Reflections on the EU’s Digital Agenda

Ganten also took the opportunity to reflect on the outgoing EU administration’s digital agenda. He noted that while Ursula von der Leyen’s presidency began with a strong focus on digital sovereignty and positioning the 2020s as Europe's "digital decade," progress had been mixed. Some achievements, like the European Commission’s open source study, had helped to elevate the issue's profile among decision-makers. Important regulatory steps, such as the Data Act, Digital Services Act, and Cyber Resilience Act, were also highlighted as milestones in the policy landscape.

However, Ganten expressed a sense of urgency and called for greater engagement from the open source community to ensure that these regulations truly reflect the sector's needs and potential. "Our voice started to be heard, but there is still much to do. We need to continue being part of the conversation," he urged.

Preparing for Potential Political Shifts

With the upcoming European elections, Ganten cautioned about the potential shift to the right in the new European administration. He pointed out the irony of certain far-right political parties echoing the language of digital sovereignty and autonomy—values that are also central to the open source movement. However, Ganten was clear that the open source community must distinguish its own inclusive, cooperative approach from any form of nationalism or protectionism.

"Open source and the way we work is a success story of international cooperation, trade, and working together. It is about meritocracy—what matters is knowledge and ability, not where you were born or raised," Ganten affirmed, urging attendees to defend these values against any appropriation by political forces that do not align with the community's principles.

A Vision for Europe's Digital Future

Peter Ganten's keynote was a call to action for the European open source community. He emphasised the need for a united and proactive approach to shaping Europe's digital future, promoting open source as both a tool for innovation and a safeguard for digital sovereignty.

Workshop: Defining Actionable Steps: APELL's Policy Agenda for the Future



The aim of this workshop was to outline realistic and timely actionable steps and policy initiatives that APELL can take to influence the agenda of the new EU administration and parliament to achieve greater digital sovereignty and greater use of open source software.

The diversity of the participants in terms of their countries of origin and the focus of their association work provided a good basis for identifying key demands relevant to the entire ecosystem in Europe and deriving concrete measures for communicating and implementing them.

Public Money, Public Code: Status quo

With the "*Loi pour une République numérique*", France has passed a law that prescribes the publication of source codes that are financed from public funds. In Germany, there is as yet no corresponding legislation at federal level (although there is in individual federal states), but there are initiatives such

as the OpenCoDE Repository. Recently, the Online Access Act also stipulates the preference for open source software. Italy promotes the use of open source software through the "*Codice dell'Amministrazione Digitale*", while Spain has similar provisions in its "*Ley 11/2007*". The Netherlands and Sweden have no specific laws, but have clear recommendations and initiatives to promote open source software. Possible goal: "Public money, public code" throughout Europe.

Promoting the priority of open source in the administration

While France and Italy have created a clear legal framework for the use of open source software, in other countries there have so far only been local initiatives and recommendations to promote the use of open source software in public administrations. It should also be noted that the mere regulatory stipulation or preference for open source software alone often does not bring about lasting change. The administration must therefore be supported in its implementation. Possible initiatives include the pooling of best practices from different countries at a central location, the creation of more training opportunities, the development of studies and handouts for implementation, which member companies of APELL members can assist with, but which must be paid for by the EU.

Which regulations are necessary and/or desirable?

The status quo of existing and desirable regulations was discussed:

- Regulations regarding data transfer to clouds: Data Act
- Guidelines to promote interoperability and the use of open standards
- Procurement: obliging administrations to examine and give preference to open source alternatives when procuring software solutions, provided they meet the requirements.
- When converting the software used in the administration to open source software, long-term requirements are needed that go beyond the time periods of legislative periods so that all parties involved can develop and implement sustainable and effective strategies for implementation. Based on the EU's target of phasing out combustion engines by 2035, a target for the exclusive procurement of open source software by administrations in Europe from 2035 was discussed and welcomed by the participants.
- At the same time, the EU must provide money for funding programs and materials, which could be offset by the expenditure on Europe-wide licensing costs for Microsoft and Oracle.

The concept of digital sovereignty

"Digital sovereignty" is a very successful term for highlighting the goals of better control and design capabilities in the digital world and the reduction of dependencies on individual providers that can be achieved with open source software, and for communicating these goals to politicians, administrations and businesses. Unfortunately, however, this term is now also used by many market participants whose products do not offer any improvement in digital sovereignty. This leads to confusion in the market.

We therefore need to gain sovereignty of interpretation on this topic. Our definition should be the gold standard, so we need to set the rules. This could become part of the APELL mission statement, for example.

How can we develop and protect the narrative of digital sovereignty?

Open source is a tool:

- to achieve equal opportunities in digitalisation and enable innovation in less digitally developed regions
- to improve sovereignty and privacy
- to protect against political changes in countries such as China or the USA (you need something you can switch to)
- for sustainability (longer lifespan of IT systems and hardware, as they can be adapted and updated more flexibly)
- to promote interoperable products from different communities and heterogeneity, thereby increasing resilience

Our 11-year target

Open-source-only: By 2035, the EU and its member states will only invest in open-source software

Workshop: Showcasing Success: Communicating the Impact of Open Source Initiatives



The workshop, moderated by Cédric Ulmer (CEO France Labs) and Torsten Hallmann (Head of Public Affairs SUSE), aimed to explore effective strategies to highlight the benefits and successes of open source software, particularly to public administrations, businesses, and the general public.

Risk Mitigation vs. Enabling Innovation: The Right Messaging

One of the key themes discussed was the importance of finding the right narrative when promoting open source software. The participants debated whether emphasising "risk mitigation"—a common argument in favour of open source—was sufficient. While this approach might appeal to some public administrations, it was suggested that it remains in the "problem space" rather than the "enabling space." For effective marketing, the focus should shift towards the potential of open source to enable innovation and collaboration.

The workshop highlighted that open source is not just about mitigating risks but also about creating opportunities. For instance, in the automotive industry, where large players have many sub-suppliers, open source provides a way to ensure interoperability among different systems. Developers working together in the open source ecosystem can achieve faster results than working independently with proprietary solutions. Thus, presenting open source as a means to foster innovation and enhance collaboration was seen as a more compelling argument.

Showcases of Open Source Success Stories

- **Virtualisation Solutions and Risk Management**

A company faced a choice between VMWare and XenSource, two virtualisation solutions with similar costs. They chose XenSource because it was open source. Shortly after, XenSource was acquired by Citrix, which made all licenses free. Despite initial concerns, the decision to go with an open source solution paid off in the long run as it remained open and flexible. When VMWare later demanded three times the price to continue as a partner, the company moved entirely to XCP-NG, another open source solution. This example highlighted that while open source might not always appear as the easiest choice, it can offer significant long-term benefits by avoiding vendor lock-in and maintaining flexibility.

- **Open Source Wiki Engines vs. Proprietary Alternatives**

A company developing a fully open-source wiki engine experienced a surge in interest after Atlassian, the provider of Confluence, changed its pricing strategy, increasing costs significantly for on-premise users. Customers began migrating to the open-source alternative, recognising that reliance on a single vendor could be risky. This case demonstrated that while cost savings are often a factor, the more compelling reason for migration should be independence and control over the software environment.

- **PostgreSQL Adoption by Large Enterprises**

One of Germany's largest banking systems chose PostgreSQL, an open source database, over proprietary competitors like Oracle and DB2. Although the transition was challenging due to strict regulatory requirements, the bank prioritised independence and long-term sustainability over short-term cost savings. This decision was motivated by a desire to avoid vendor lock-in and reduce reliance on expensive proprietary software solutions.

- **Public Administration Missteps and Lessons Learned**

A city council's failed project served as a cautionary tale. The CIO had promised that migrating to open source would cost zero euros, which proved unrealistic. A decade later, the city council still viewed open source negatively due to this failure. This case underscored the importance of educating public sector clients on the realistic costs and benefits of open source,

avoiding unrealistic promises, and promoting sustainable, long-term benefits.

Key Strategies for Promoting Open Source Success

- **Focus on Education and Proof of Concepts (POCs)**
Pushing for POCs or pilot projects with public administrations was identified as an effective way to demonstrate the value of open source software. Showcasing successful implementations can build trust and convince potential clients.
- **Highlighting Long-Term Cost Benefits and Independence**
While cost savings alone should not be the primary argument, participants agreed that it could be a powerful long-term argument when coupled with the narrative of independence and sustainability. For example, many large organisations like banks chose open source databases to gain independence from expensive proprietary software vendors.
- **Participating in Events and Engaging Stakeholders**
Organising or participating in “Brown Bag Lunches” or Friday afternoon presentations in companies, where similar companies present their success stories, was suggested as a way to engage decision-makers and engineers. Reaching out to tech days and all-hands meetings in mid-size companies was also recommended.
- **Promoting Trust and Transparency**
Trust was highlighted as a significant advantage of open source. Unlike proprietary software, open source solutions are not “black boxes.” Companies know where their data is stored and how it is managed, which is especially important for sectors with stringent regulatory requirements, like finance and government.
- **Emphasising Global Reach and Local Adaptability**
Success stories such as the adoption of LibreOffice in developing countries due to its flexibility and support for local languages demonstrated the global reach and local adaptability of open source software.

Actionable Takeaways from the Workshop

- **Increase Visibility**
Engage with industry analysts and influencers, such as Gartner, to raise awareness about open source projects. This approach was successfully used by the NGI initiative, which focused on trust, resilience, and sustainability.

- **Improve User Experience (UX)**
Investing in UX is critical to making open source software more accessible and appealing to end-users, as many current open source tools lack user-friendly interfaces compared to proprietary software.
- **Organise National and European Awards**
Similar to "Les Acteurs du Libre" in France, national and European trophies could be organised to recognise and celebrate the contributions of open source projects, increasing visibility and recognition.
- **Conduct Surveys to Attract Media Attention**
Regular surveys on open source business practices and trends could help attract media coverage and global visibility, similar to efforts by Bitkom and CNLL.
- **Mainstream Open Source Adoption**
Develop initiatives to simplify the installation and use of open source software, such as one-click deployment tools, to make open source more accessible to non-technical users.
- **Expand Showcasing Efforts**
Actively participate in events, fairs, and company presentations to showcase successful open source implementations and build a wider network of advocates.

Workshop: Building Capacity for Action: Leveraging Resources for EU Open Source Initiatives



This workshop, moderated by Peer Heinlein (CEO Heinlein Support, mailbox.org & OpenTalk) and Stefano Pampaloni (RIOS) focused on identifying practical strategies and resources to strengthen the open source ecosystem across Europe. Participants discussed various ways to enhance workforce capacity, foster cooperation between companies and countries, and align efforts to support open source software (OSS) initiatives at a continental scale.

Training and Upskilling: Developing Future Open Source Talent

One of the primary topics of discussion was the importance of developing a skilled workforce that is well-versed in open source principles and technologies. The workshop participants explored various initiatives to attract and train new talent for the open source community:

- **Educational Projects and University Collaborations**

Several initiatives were highlighted, including projects in Kenya aimed at training and hiring developers and SysAdmins, which were seen as potential blueprints for similar programs in Europe. In Italy, cooperation with students was also seen as a promising approach. However, there was a concern about whether students graduating from universities are adequately connected to open source practices. It was suggested that their engagement often depends more on personal interest than university curricula.

- Participants proposed more structured engagement with educational institutions, such as special graduation papers or certifications for contributing to open source projects. It was also suggested that OSS ambassadors could provide dedicated courses, and funding could be directed towards upskilling workers in fields like cybersecurity.

Scaling Up: Expanding Beyond Local Boundaries

- **Need for More Workers than Students**

While it is important to attract students, the immediate need is for more experienced workers. Several companies in Europe already engage in apprenticeship programs, but more efforts are required to scale this across the continent.

- **Fragmentation and Lack of Cooperation**

A significant barrier identified was the fragmented nature of efforts across different European countries. For instance, while there is cooperation between France and Germany, other countries like the Netherlands, even when using similar software, often work independently. This lack of cooperation hampers the ability to scale effectively and reduces overall competitiveness.

Overcoming Barriers to Growth: Legal, Financial, and Structural Challenges

- **Legal and Regulatory Barriers**

A key concern was the need to change legal regulations to be more accommodating to open source software. For instance, allowing more private contributions and fostering innovation through open standards could help create a more supportive environment for OSS growth.

- **Challenges of Small vs. Big Companies**

The workshop debated whether Europe's focus on small companies is an obstacle to achieving scale. While small and medium-sized enterprises (SMEs) are vital for innovation, there was a call for building bigger companies or consortia that can operate with scale and speed.

The lack of large-scale European players compared to the US was attributed to various factors,

including language barriers and different market dynamics. The idea of creating aggressive, growth-oriented companies was floated as a solution to compete on a global scale.

Concrete Actions and Strategic Steps

- **Facilitate Cross-Border Cooperation**

It was proposed to establish an OSS association in Poland, as Poland is the largest EU country without one. Similar efforts were suggested for the Czech Republic and a revival of the Spanish association. APELL could aim to have at least one member from each European country, fostering a pan-European open source community.

- **Enhance Management Structures**

Participants suggested creating management structures that work effectively across different companies and projects. Successful examples like the Linux kernel project were cited, where collaborative efforts have led to robust and scalable development processes.

- **Leverage Venture Capital and EU Funds**

There was a call to engage venture capital (VC) and EU funds to support the growth of open source initiatives. The idea is to bring in big investors to think “big” and help scale projects faster. This could also involve using funding to promote joint efforts and collaborations across borders.

- **Turn Regulatory Challenges into Opportunities**

Participants discussed turning the Cyber Resilience Act (CRA) into an opportunity by positioning themselves to influence the development of standards. Engaging with policymakers and industry leaders could help define the rules that benefit the open source community.

- **Build Community Connections**

APELL could take a more active role in building the open source community by appointing a dedicated person to connect people with open source ideas and projects. Organising more activities and networking events could help strengthen ties between different stakeholders.

- **Focus on Capacity Building and Innovation**

To prepare for a future where the public sector might buy only open source software, there was a consensus that substantial capacity building is required. This includes upskilling current workers, attracting new talent, and ensuring there are sufficient developers, engineers, and service providers to meet demand.

Opening Forum by Peter Ganten, President APELL



A Call for Collaboration and Action in the Open Source Community

After the morning workshops concluded, Peter Ganten, President of APELL and Chairman of the German Open Source Business Alliance, welcomed the broader Open Source community to the conference for a series of talks and panel sessions. Ganten set the stage for the day's discussions with a call to action for the European open source community, emphasizing the importance of collaboration, strategic growth, and the need to assert influence in the evolving political landscape of Europe.

A Moment for Reflection and Growth

Ganten began by welcoming participants from various countries, highlighting the diversity and unity within the European open source ecosystem. Representatives from France, Finland, Switzerland, Italy, the Netherlands, the Czech Republic, and Germany were present, reflecting the widespread interest and involvement in open source initiatives across Europe. Ganten expressed his enthusiasm for the opportunity to host this year's conference and to continue fostering connections among open source

businesses, policymakers, and community leaders.

He reiterated the unique structure of APELL as an umbrella organisation for European open source business associations, explaining that its mission is to represent the interests of these associations at the European Union level. Ganten emphasised that APELL does not compete with national organisations but rather enhances cooperation between companies across different countries, enabling them to work together more effectively.

Building Capacity and Strengthening Voice

A key theme of Ganten's keynote was the need to build capacity and strengthen the voice of the open source community in Europe. He acknowledged the progress made by APELL in its first three years, noting that the organisation has already facilitated partnerships and created business opportunities among its members. However, he underscored that there is still much work to be done to increase APELL's influence and impact.

"Our budget is still quite small, around 6,000 euros a year, but we are determined to grow," Ganten said. He announced plans to increase the budget and hire a dedicated representative to strengthen APELL's political communication and advocacy efforts at the European level. This step, he explained, is crucial for achieving the organisation's long-term goals of shaping EU policy and promoting digital sovereignty.

Emphasising the Importance of Digital Sovereignty

Ganten spoke about the concept of digital sovereignty, a recurring topic in his keynote. He highlighted the increasing importance of controlling and shaping digital infrastructures in an era marked by geopolitical tensions, cyber threats, and technological dependencies.

"Everything in our lives has a digital aspect now," he noted, "and being able to control and shape the digital is required to control and shape our destiny." He stressed that, in a world where digital technology is ubiquitous, retaining control over digital systems through open source solutions is vital to maintaining sovereignty and innovation.

He pointed out the urgency of this mission in light of the current geopolitical climate, marked by war and cyber warfare. Ganten called on the open source community to take an active role in ensuring that Europe remains a hub for innovation and digital independence. "It is crucial that we remain able, or re-enable ourselves, to control our destinies, to be innovative, and to create value through digital sovereignty," he said.

Preparing for a New European Government

Looking ahead, Ganten emphasised the importance of being proactive with the incoming European government following the upcoming elections. He encouraged the open source community to engage with new policymakers from the start, providing recommendations and solutions to ensure that open source software remains central to Europe's digital strategy.

He also stressed the need for the open source community to remain vigilant and adaptable in the face of changing political dynamics, including the rise of nationalist movements that might seek to co-opt the concept of digital sovereignty. Ganten highlighted that while open source shares some of the goals of these movements—such as promoting self-determination and independence—it does so in a fundamentally different way, based on international cooperation, openness, and meritocracy.

Showcasing Success Stories and Future Opportunities

The keynote also served as an introduction to the afternoon's program, which featured keynotes and presentations by several prominent figures in the open source community. Ganten welcomed keynote speakers Geraldine de Bastion and Manuel Hoffmann, as well as representatives from the German Ministry of Economic Affairs and Climate and the Sovereign Cloud Stack project.

He emphasised the importance of the Sovereign Cloud Stack project, a more than 10 million euro initiative funded by the German government to build a cloud infrastructure based on open source principles. The project, Ganten explained, serves as a prime example of how open source can drive innovation and digital sovereignty at a national level.

A Call for Unity and Action

Ganten concluded his keynote by calling for greater unity and collaboration within the open source community. He stressed the need to complete the membership of APELL by encouraging more countries to establish national open source associations and join the umbrella organisation. "We need to work together to build a stronger, more coordinated voice for open source in Europe," he said.

Keynote by Geraldine de Bastion: Open Source for Democracy – Operating Systems for participatory Systems and collective decision making



The keynote address by Geraldine de Bastion was a reminder of the broader significance of open source technology in promoting democracy, human rights, and social innovation worldwide. As a seasoned advocate for digital rights and open technologies, de Bastion delivered a powerful speech underscoring the vital role that open source plays not only in technical innovation but also as a fundamental pillar of democratic societies.

The Global Importance of Open Source

De Bastion began her keynote by introducing her background and experience working with diverse stakeholders, from internet activists and NGOs to startups and governments. As co-founder and managing director of the Digital Transformation Consultancy Konnektiv and the Global Innovation Gathering (GIG), she has been at the forefront of fostering digital transformation and innovation across the

globe. Her opening remarks established the importance of open source as more than just a set of technical tools; rather, it is a concept and practice that underpins democratic participation and governance.

She highlighted that open source is crucial in creating equitable access to technology, especially in environments where democratic processes are fragile or under threat. "Open source is about democratising access to technology," she said, emphasising that it allows communities worldwide to participate in digital society on an equal footing. This is particularly important in regions where people may have learned about technology in informal or restricted settings, such as refugee camps or underserved schools, and need open platforms to innovate and communicate.

Open Source and Democracy

Focusing on how open source matters for democracy, de Bastion explored two key dimensions: open source as a technology and as a concept. She underscored that transparency and accountability are fundamental components of any democratic system, and open source technologies inherently support these values. When public sector technology is based on open source, it allows for public inspection, modification, and improvement of the code, thereby enhancing transparency and reducing risks of corruption and manipulation.

De Bastion cited several global examples, including the Portuguese city of Cascais, which has used open data sharing to enhance transparency and accountability in public operations. She argued that the accessibility of open source tools is especially important in low-income countries and regions, where budget constraints often prevent the use of expensive proprietary technologies.

Efficiency and Trust-Building

Another crucial benefit of open source, according to de Bastion, is efficiency. In a world facing multiple crises, including personnel shortages, resource scarcity, and rising energy costs, open source offers a more efficient way to develop and deploy technology. "We don't need to keep reinventing the wheel," she noted, highlighting how open source allows communities to build upon existing technologies collaboratively.

De Bastion also stressed the role of open source in building trust, both within public institutions and between governments and their citizens. She shared examples from her work in Africa, where local developers trained in open source skills were overlooked in favour of foreign companies due to a perceived lack of trust in local capabilities. "There's so much potential wasted," she lamented, emphasising that building trust in local tech communities is essential for sustainable development.

Open Source Governance Models

De Bastion shifted her focus to discuss open source as a governance model, advocating for the application of open source principles—transparency, collaboration, and participation—in political decision-making processes. She argued that these principles could help counter the growing discontent and polarisation in democratic societies by fostering more direct citizen engagement in governance.

Highlighting innovative governance tools such as Decidim and DemocracyOS, de Bastion showcased how open source platforms are already being used around the world to enhance participatory democracy. In cities like Barcelona, Helsinki, and several municipalities in Belgium, these platforms have enabled citizens to engage directly with government decision-making processes, from participatory budgeting to public consultations.

A Vision for the Future: Fab Cities and Beyond

De Bastion concluded her keynote by exploring the concept of "Fab Cities," which envision a future where cities produce everything their residents consume using sustainable, open source approaches. She pointed to the multi-stakeholder governance model of Fab Cities as an example of how open source principles can be applied to urban planning and sustainability.

The Digital Public Good Alliance, endorsed by the United Nations, was also mentioned as a repository of open digital tools that can help cities achieve their sustainable development goals. De Bastion urged the audience to advocate for wider adoption of these tools and to challenge the tendency of governments to reinvent the wheel rather than leveraging existing open source resources.

A Call to Action

Ending on a note of urgency, de Bastion called on the audience to take action to ensure open source is recognised and adopted by political parties across Europe. She revealed that only three parties in the upcoming EU elections have mentioned open source in their platforms. "It's all of our job to make sure it doesn't stay that way," she stated, encouraging attendees to engage with policymakers and advocate for open source to be integrated into future party programs.

Keynote by Manuel Hoffmann: Unveiling the Economic Value of Open Source



Manuel Hoffmann, a postdoctoral researcher at Harvard Business School's Laboratory for Innovation Science, delivered an insightful keynote focused on the economic value of open source software. Drawing on a recent study titled "The Value of Open Source," Hoffmann presented a compelling case for recognising open source software as a significant driver of economic growth, innovation, and cost savings across the globe.

The Growing Role of Open Source in Modern Software Development

Hoffmann began by contextualising the widespread adoption of open source software in today's digital economy. He highlighted that open source software now forms a substantial portion of the codebase for many companies worldwide. According to Hoffmann, around 96% of firms' codebases contain open source software, and approximately 76% of the total code lines in these firms are open source. This widespread adoption has positioned open source as a foundational component in the development of cutting-edge technologies, including artificial intelligence (AI), quantum computing, and big data analytics.

Hoffmann echoed the famous statement that "software is eating the world" by adding that "open source software is eating software faster than software is eating the world." This, he argued, reflects the accelerating pace at which open source is reshaping industries, emphasising its role as a public good that benefits society as a whole. Despite its importance, however, Hoffmann pointed out that the value of open source software is not adequately captured in traditional economic measures like Gross Domestic Product (GDP).

Measuring the Value of Open Source: A Complex Challenge

To address this gap, Hoffmann and his colleagues set out to quantify the value of open source software. He explained the challenge of measuring this value due to the nature of open source: it is freely available, infinitely replicable, and its usage is not tracked in conventional economic terms. Therefore, the team adopted an approach called the "labour replacement value" method, which estimates the cost of replicating the universe of open source code if it were not freely available.

Using this approach, Hoffmann's team analysed two large datasets—one from the Census of Free and Open Source Software and another from BuiltWith, which monitors technology usage across millions of websites. By examining these datasets, they aimed to understand both the supply-side value of open source (the cost of creating the software) and the demand-side value (the economic benefits derived from its use).

Key Findings: The Value of Open Source Software

- **Supply-Side Value**

The estimated cost of replicating widely-used open source software, if it had to be recreated from scratch, ranges from \$1.22 billion (using wage estimates from a low-wage country like India) to \$6.22 billion (using wage estimates from a high-wage country like the United States). This value represents the cost of the labour required to produce the existing open source code.

- **Demand-Side Value**

The study also sought to quantify the economic benefits of open source software based on its actual usage by firms worldwide. Hoffmann revealed that the demand-side value of open source software—what firms would have to spend on software if open source did not exist—ranges from \$2.5 trillion to \$13 trillion, with an average estimate of \$8.8 trillion. This figure highlights the immense economic value that open source software contributes by reducing costs and fostering innovation.

- **Cost Savings for Firms**

Without open source software, firms would need to spend approximately 3.5 times more on software than they currently do. This finding underscores the substantial cost-saving benefits of open source software for businesses across various sectors.

Uneven Distribution of Open Source Contributions and Value

Hoffmann also explored the distribution of value and contributions within the open source ecosystem. He presented data showing that a small number of developers are responsible for a disproportionate amount of the value created. Specifically, 5% of developers are responsible for 96% of the demand-side value. This concentration of contribution highlights both the significance and the fragility of the open source ecosystem, where the efforts of a few can have a massive impact.

Additionally, Hoffmann discussed variations in the usage and value of open source software across different programming languages and industries. For instance, programming languages like Go, JavaScript, and TypeScript are particularly prevalent in the datasets analysed, with Go showing a surprisingly high level of usage on the demand side. He also noted that industries such as retail trade, technical services, healthcare, and social assistance are among the largest users of open source software, while the financial sector shows lower adoption rates due to regulatory constraints.

The Broader Economic Implications of Open Source

Hoffmann concluded by reflecting on the broader economic implications of the study's findings. The substantial value created by open source software, both in terms of direct cost savings and indirect benefits such as increased innovation and collaboration, reinforces the importance of continued investment in and support for the open source ecosystem. He emphasised that understanding and quantifying the value of open source software is crucial for promoting its adoption and ensuring that its benefits are fully realised by businesses and governments alike.

A Call for Greater Recognition and Support

As Hoffmann wrapped up his keynote, he called for greater recognition of the economic and social value of open source software. He encouraged attendees to continue advocating for open source adoption and to engage with policymakers and business leaders to ensure that the benefits of open source are understood and embraced. Given the immense value that open source software provides, he argued, it is essential for both public and private sectors to invest in and support the open source community.

Sovereign Cloud Stack: A Unified Effort to Build Open Standards and Free Software in the Cloud



Kurt Garloff, CTO of the Sovereign Cloud Stack (SCS), delivered a talk on the development of open standards in a multi-stakeholder environment through the Sovereign Cloud Stack project. Hosted by the German Open Source Business Alliance and funded by the Federal Ministry for Economic Affairs and Climate Action, SCS aims to create an open-source cloud infrastructure that prioritises digital sovereignty, transparency, and user control.

The Origins and Vision of the Sovereign Cloud Stack

Garloff began by reflecting on the early days of open source, when a small group of idealistic developers fought for software freedom in what seemed like a David versus Goliath scenario. Despite initial skepticism, open source has emerged as a powerful force, driving rapid innovation and shaping the very fabric of the internet. However, Garloff warned that this success comes with new challenges and risks that threaten the openness and freedom that were the founding principles of the open

source movement.

One of the major concerns raised by Garloff was the emergence of “single vendor open source,” where companies that initially embraced open source principles have gradually turned towards more restrictive practices, using “fake open licenses” that do not meet the Open Source Initiative (OSI) definition. This trend, he argued, poses a significant risk to the open source ecosystem, as it undermines the very freedoms that have enabled such rapid technological innovation. Against this backdrop, the Sovereign Cloud Stack project was launched with the aim of building a truly open, transparent, and sovereign cloud infrastructure that empowers users with genuine freedom of choice and control over their digital environments.

Addressing the Challenges of Digital Sovereignty

Garloff outlined the concept of digital sovereignty as a multi-dimensional challenge that affects individuals, companies, and states alike. He identified four key dimensions of digital sovereignty:

- **Legal Dimension**

Compliance with data protection rules and the ability to control access to data are fundamental to digital sovereignty. However, Garloff noted that this is often the only dimension addressed by so-called “sovereign cloud platforms,” which may solve the compliance issue but fail to provide true freedom of choice or innovation.

- **Freedom of Choice**

Once users are locked into a particular cloud platform through proprietary APIs, tools, and services, switching costs become prohibitively high. The Sovereign Cloud Stack aims to reduce these switching costs by creating a network of cloud providers that adhere to common standards, allowing users to move freely between providers without being locked into a single ecosystem.

- **Technological Innovation**

The ability to innovate at the infrastructure layer is critical for creating value and ensuring resilience. The SCS project promotes open source development and collaboration, enabling users to innovate and contribute to the infrastructure technology itself.

- **Competency Dimension**

Operating a large, distributed digital platform is a complex task that requires specialised knowledge and skills. SCS focuses on building a community of practice around cloud operations, sharing best practices, and fostering collaboration among cloud providers.

Building an Open and Interoperable Cloud Ecosystem

To achieve these goals, the SCS project has developed a comprehensive strategy that includes creating open standards, promoting interoperability, and fostering a collaborative ecosystem of cloud providers. Garloff emphasised that SCS is not just about developing open source software; it is also about building a sustainable ecosystem that includes open design, open community, and open development processes, as outlined by the Open Infrastructure Foundation's "four opens" framework.

One of the key components of the SCS strategy is the creation of a network of cloud providers that adhere to common standards, ensuring compatibility and reducing switching costs for users. This network is supported by automated testing and certification processes that verify compliance with SCS standards. Notably, the project has already achieved a significant milestone with the successful deployment of the first cloud that does not rely on the reference implementation but still meets all SCS standards.

Achievements and Future Directions

Since its inception, the SCS project has made substantial progress. It has been supported by over €10 million in funding from the German government, which has enabled the development of open standards and software, as well as the establishment of a collaborative ecosystem of cloud providers. Several major users, including PlusServer, have already adopted the SCS standards, with deployments such as the Bavarian School Cloud, which serves over a million users.

Looking ahead, Garloff acknowledged that the project's funding will eventually shift from public to private sources. To ensure sustainability, SCS will continue to be managed by the Open Source Business Alliance as a non-profit organisation responsible for maintaining the standards, certification processes, and ecosystem management. In parallel, a company will be established to provide maintenance and support for the reference implementation, similar to the role played by traditional open source companies.

The Importance of Collaboration and Regulation

Garloff also highlighted the potential for collaboration with other European initiatives, such as ORA (formerly IPSYSIS), to share SCS's standards, code, and experience. He suggested that regulation could play a role in supporting the adoption of open standards and reducing dependency on proprietary solutions, particularly in the public sector.

Addressing a broader question raised earlier in the day about whether open source companies are too fragmented and small to meet the needs of large organisations, Garloff emphasised the importance of collaboration. He argued that the SCS is already demonstrating the value of collaboration not

only in software development but also in building standards and creating a joint certification program. By fostering a larger, more competitive ecosystem, SCS aims to challenge the dominance of major cloud providers and promote a more open and innovative digital infrastructure.

Engaging in Open Source Policy: A Panel Discussion on the Past, Present, and Future



The panel brought together key figures from the open source community and policy-making spheres to reflect on their recent work, assess challenges, and set the direction for future efforts. The panel featured Adriana Groh, co-founder of the Sovereign Tech Fund; Philipp Ludewig, a legal advisor at the German Federal Ministry for Economic Affairs and Climate Action; Astor Nummelin Carlberg, Executive Director of Open Forum Europe; Peter Ganten, Chairman of the Open Source Business Alliance; and Miriam Seyffarth, Head of Political Communication at the Open Source Business Alliance, who moderated the discussion.

Reflecting on Past Policy Efforts: A Critical Look

The panel began by taking a hard look at what went wrong over the past legislative period regarding open source policy at the European level. A key theme that emerged was the lack of preparedness and engagement from the open source community. Astor Nummelin Carlberg noted that when the

European Commission presented the Cyber Resilience Act (CRA), the intent to protect free and open source software (FOSS) was clear from the start. However, he emphasised that the community's response was insufficient, with only a few organisations like Open Forum Europe (OFE) and the Free Software Foundation Europe (FSFE) raising concerns early on.

Peter Ganten echoed this sentiment, citing the example of Gaia-X, a European initiative to create a federated data infrastructure. He described the initial excitement around Gaia-X but expressed disappointment over the lack of progress, attributing it to high expectations and limited results. Both speakers agreed that the community underestimated the need for proactive policy engagement, assuming that political support would naturally translate into tangible outcomes.

Philipp Ludewig, representing the German government's perspective, highlighted the need for patience and understanding of democratic processes. While acknowledging the frustration with slow progress, he stressed that achieving consensus among multiple stakeholders, especially in a diverse environment like the European Union, is inherently challenging.

Lessons Learned: What Went Right?

While the panelists were candid about the setbacks, they also acknowledged several achievements over the past five years. One significant accomplishment was the increased visibility and recognition of open source within the policy sphere. Adriana Groh emphasised the success of framing "digital sovereignty" in alignment with open source principles, which shifted the conversation towards a more inclusive understanding of autonomy and agency rather than protectionism. This reframing helped maintain the relevance of digital sovereignty in policy discussions, allowing it to serve as a vehicle for promoting open source values.

Astor Nummelin Carlberg pointed to a broader shift in momentum, with more policymakers and businesses acknowledging the importance of open source. He noted that even proprietary companies now use open source as a selling point, indicating a change in the perception of open source as a strategic asset rather than a niche interest.

The panel also celebrated the growth in dedicated resources for open source policy work. Carlberg noted that the number of people working full-time on open source policy in Europe had increased, demonstrating a rising demand for expertise in this area.

Looking Forward: Goals for the Future

The panel then turned to discuss the future, focusing on strategies for strengthening the open source ecosystem in Europe. A recurring theme was the need for better coordination and representation of open source interests in policy discussions. Adriana Groh highlighted the challenge of balancing de-

centralised, volunteer-driven communities with the structured processes required for effective policy advocacy. She stressed the importance of finding ways to improve interest representation while respecting the open source community's diverse and decentralised nature.

Peter Ganten outlined the importance of leveraging the demand side of the equation. He argued that if the public sector and other major stakeholders commit to open source, it could drive substantial investments and capacity building. Ganten also emphasised the need for cross-border collaboration among European open source companies, suggesting that building stronger networks and partnerships could help scale up efforts to compete with larger, proprietary tech firms.

Astor Nummelin Carlberg called for the development of more robust metrics and indices to measure the value and impact of open source. He argued that establishing indicators of a healthy open source economy could help policymakers better understand its strategic importance and guide both public and private investments.

Navigating a Complex Political Landscape

The panelists also touched on the potential challenges posed by the upcoming European elections, particularly the potential rise of far-right parties that may support digital sovereignty and open source but do not align with the broader values of the open source community. The discussion highlighted the need for a clear strategy to navigate these complexities, balancing engagement with protecting the community's core values.

Peter Ganten stressed the importance of understanding the new political landscape and establishing internal guidelines to determine which parties to engage with and which to avoid. Astor Nummelin Carlberg added that while open source should remain a non-partisan issue, it's crucial to ensure that engagement with political actors aligns with the community's democratic values.

Strengthening the Open Source Ecosystem

The discussion concluded with ideas on how to strengthen the open source ecosystem as a whole. Adriana Groh emphasised the need for targeted investments, such as those made by the Sovereign Tech Fund, to support foundational projects and address critical gaps. She also underscored the importance of capacity building, diversity, and fostering new talent to ensure the ecosystem's sustainability.

The panel agreed that while there is still much work to be done, the growing recognition of open source's importance and the increasing engagement from both public and private sectors provide a strong foundation for future progress. As the open source community prepares for the next legislative period, it remains committed to advocating for policies that promote openness, collaboration, and digital sovereignty across Europe.

About APELL:

APELL (Association Professionnelle Européenne du Logiciel Libre) is Europe's Open Source Business Association. Founded in 2020 to bring national Open Source Software ('OSS') organisations together into a European network to provide them with peer support and collective marketing, as well as capacity building and policy support for public affairs, both nationally and on the EU-level.

APELL aims to increase opportunities for the members of the Association's member organisations, and to increase value and advancement for the ultimate customers in both the public and the private sectors. At the same time, we see a real need to bring the Open Source perspective into the discussions on the shaping of Europe's digital future.

We support the digitisation of the economy and society – but it matters how we digitise. APELL promotes a sovereign, inclusive, ethical digital market. In order to achieve this, Europe's digital future should be based on Open.

In total, APELL represents 643 European open source companies through it's member associations.

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